



TFT5600 Rackmount Keyboard and Monitor (RKM)

Model M5FAE

Maintenance and Service Guide

First Edition (May 2001)
Part Number 230204-001
Compaq Computer Corporation

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About This Guide

This maintenance and service guide is a troubleshooting guide that can be used for reference when servicing a Compaq TFT5600 Rackmount Keyboard and Monitor (RKM).



WARNING: To reduce the risk of personal injury from electrical shock and hazardous energy levels, only authorized service technicians should attempt to repair this equipment. Improper repairs could create conditions that are hazardous.

IMPORTANT: The installation of options and servicing of this product shall be performed by individuals who are knowledgeable of the procedures, precautions, and hazards associated with equipment containing hazardous energy circuits.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Symbols on Equipment

These icons may be located on equipment in areas where hazardous conditions may exist.



Any surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.

WARNING: To reduce the risk of injury from electrical shock hazards, do not open this enclosure.



Any RJ-45 receptacle marked with these symbols indicates a Network Interface Connection.

WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.



Power Supplies or Systems marked with these symbols indicate the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electrical shock, remove all power cords to completely disconnect power from the system.

Compaq Technician Notes



WARNING: Only authorized technicians trained by Compaq should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indications of component replacement or printed wiring board modifications may void any warranty.



WARNING: To reduce the risk of personal injury from electrical shock and hazardous energy levels, do not exceed the level of repair specified in these procedures. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs could create conditions that are hazardous.



WARNING: To reduce the risk of electric shock or damage to the equipment:

- If the system has multiple power supplies, disconnect power from the system by unplugging all power cords from the power supplies.
- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.



CAUTION: To properly ventilate your system, you must provide at least 12 inches (30.5 cm) of clearance at the front and back of the computer.



CAUTION: The computer is designed to be electrically grounded. To ensure proper operation, plug the AC power cord into a properly grounded AC outlet only.

Where to Go for Additional Help

In addition to this guide, the following information sources are available:

- User Documentation
- Compaq Service Quick Reference Guide
- Service Training Guides
- Compaq Service Advisories and Bulletins
- Compaq QuickFind
- *Compaq Insight Manager*™
- Compaq Download Facility: Call 1-281-518-1418

Integrated Management Display

Some Compaq server models include a Compaq Integrated Management Display (IMD), an integrated, 16x4 character display mounted on the front of the server. This display provides easy-to-use menu-driven access to server information, including model number, LCD firmware revision, and POST operations.

Telephone Numbers

For the name of your nearest Compaq authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.

For Compaq technical support:

- In the United States and Canada, call 1-800-386-2172.
- For Compaq technical support phone numbers outside the United States and Canada, visit the Compaq website:

www.compaq.com

Chapter **1**

Identifying Components

This chapter provides the illustrated parts breakdown and a serial number location for the Compaq TFT5600 Rackmount Keyboard and Monitor (RKM). Use the following information to locate and identify the components of the TFT5600 Rackmount Keyboard and Monitor (RKM).

Front Panel Components

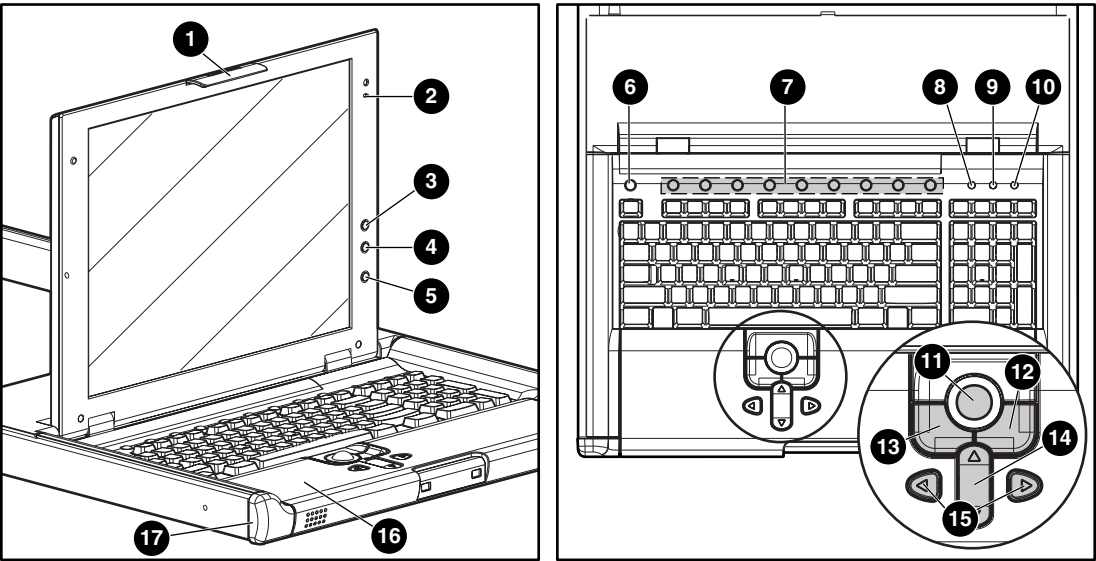


Figure 1-1. Identifying front panel components

Table 1-1
TFT5600 Rackmount Keyboard and Monitor (RKM)
Front Panel Components

Reference	Component	Reference	Component
❶	Display release latch	❿	Scroll lock LED
❷	Display switch	⓫	Track ball
❸	On-screen display scroll up button	⓬	Right pick button
❹	On-screen display scroll down button	⓭	Left pick button
❺	On-screen display activation button	⓮	Scroll up and down button
❻	Programmable wizard key	⓯	Scroll left and right button
❼	Nine hot keys	⓰	Palm rest
❽	Number lock LED	⓱	Front plastic bezel
❾	Cap lock LED		

Rear Components

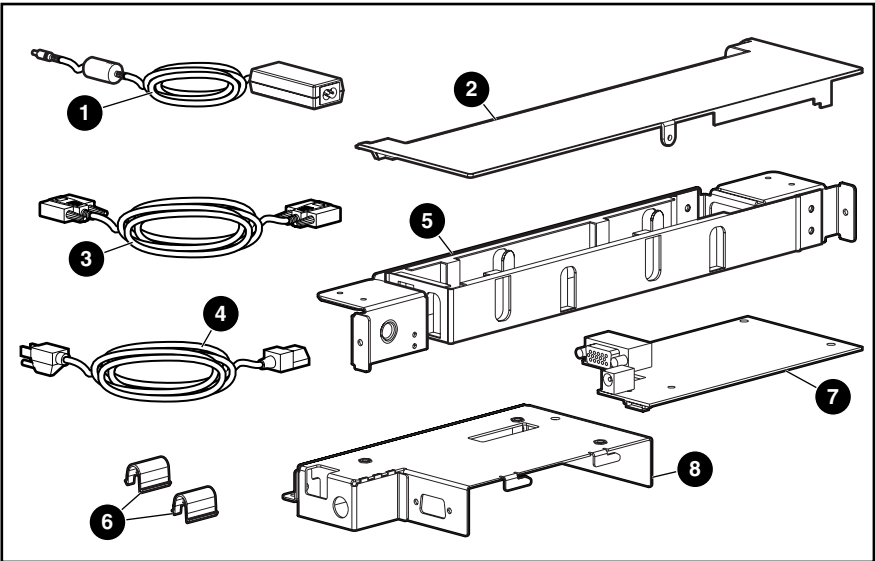


Figure 1-2. Identifying rear components

Table 1-2
TFT5600 Rackmount Keyboard and Monitor (RKM)
Rear Components

Reference	Component
①	AC brick
②	Rear cover
③	VGA cable
④	Power cord
⑤	Brace assembly
⑥	Clutch covers
⑦	Controller board
⑧	Metal controller cover

Serial Number Location

You will need to provide the TFT56000 RKM serial number to Compaq whenever you request information or order spare parts. The serial number is located on the bottom of the tray near the agency label.

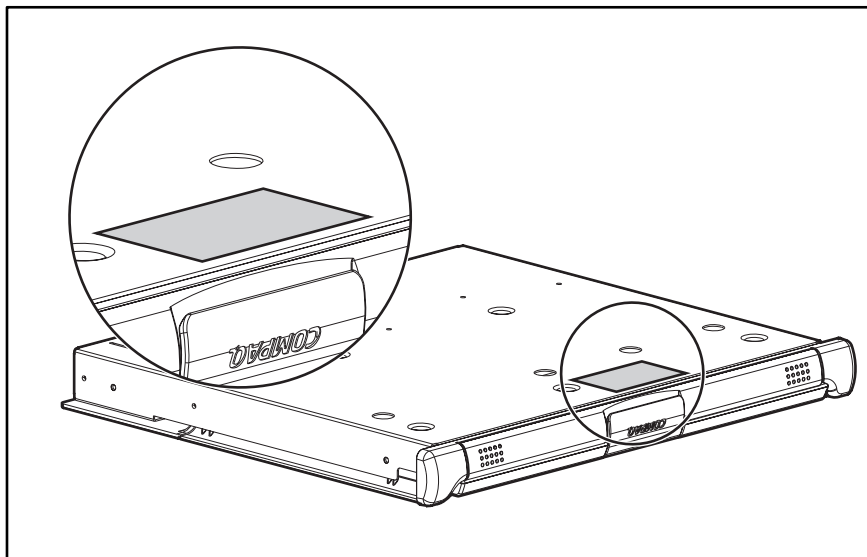


Figure 1-3. Serial number location

Chapter **2**

Illustrated Spare Parts List

This chapter provides an illustrated parts breakdown and a spare parts list for the Compaq TFT5600 Rackmount Keyboard and Monitor (RKM). See Table 2-1 for the names of referenced spare parts.

Exploded View of Spare Parts

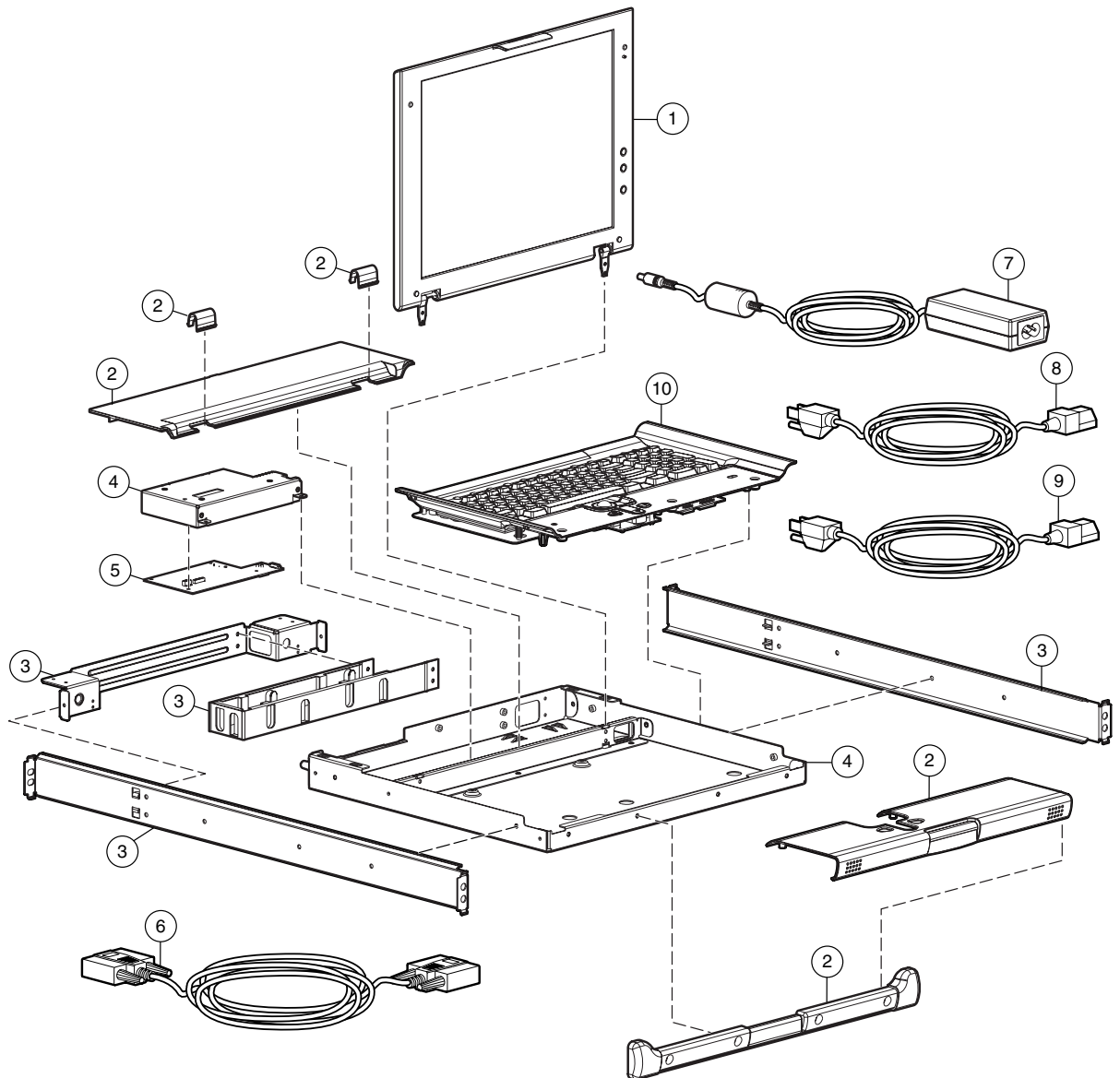


Figure 2-1. Exploded view of the TFT5600 RKM

Table 2-1
TFT5600 Rackmount Keyboard and Monitor (RKM) Spare Parts List

Reference	Description	Spare Parts Number
①	SPS-DISPLAY,LCD,15"	229842-001
②	SPS-PLASTICS	229846-001
	■ BEZEL,TRAY,FRONT (224046-001)	
	■ REST,PALM (222178-001)	
	■ COVER,REAR-TOP (222179-001)	
	■ COVER,CLUTCH (222180-001)	
③	SPS-RAIL,MOUNTING,W/SLIDES	229845-001
	■ MOUNTING RAILS,W/SLIDES	
	■ BRACE,CMA	
④	SPS-TRAY,METAL	229843-001
	■ TRAY, METAL	
	■ COVER, METAL	
	■ CLIP, GROUNDING	
⑤	SPS-BD,CNTRLR	229847-001
⑥	SPS-CA,VGA,MALE-MALE,9FT	238729-001
⑦	SPS-ADPTRAC 40W 4 PRONG/MINIJCK	218319-001
⑧	SPS-CORD	
	SPS-CORD,AC,PWR,10',BLK	255135-001
	SPS-CORD,AC,PWR,10',BLK-EUR	255135-021
	SPS-CORD,AC,PWR,10',BLK-UK	255135-031
	SPS-CORD,AC,PWR,10',BLK-IT	255135-061
	SPS-CORD,AC,PWR,10',BLK-SI	255135-111
	SPS-CORD,AC,PWR,10',BLK-JP	255135-291

continued

Table 2-1

TFT5600 Rackmount Keyboard and Monitor (RKM) Spare Parts List *continued*

Reference	Description	Spare Parts Number
9	SPS-CA,AC,LINE,C5-C14,ADAPTER	192514-001
10	SPS-KEYBOARD	
	SPS-KEYBOARD,CBN	230978-001
	SPS-KEYBOARD,CBN-UK	230978-031
	SPS-KEYBOARD,CBN-GR	230978-041
	SPS-KEYBOARD,CBN-FR	230978-051
	SPS-KEYBOARD,CBN-IT	230978-061
	SPS-KEYBOARD,CBN-SP	230978-071
	SPS-KEYBOARD,CBN-DK	230978-081
	SPS-KEYBOARD,CBN-NO	230978-091
	SPS-KEYBOARD,CBN-SE	230978-101
	SPS-KEYBOARD,CBN-SW	230978-111
	SPS-KEYBOARD,CBN-PT	230978-131
	SPS-KEYBOARD,CBN-BE	230978-181
	SPS-KEYBOARD,CBN-JP	230978-291
	SPS-KEYBOARD,CBN,INTL	230978-B31

Chapter **3**

Removal and Replacement Preliminaries

IMPORTANT: Before beginning any of the procedures in Chapter 4, read and understand the cautions and warnings in this chapter.

This chapter provides general service information for the Compaq TFT5600 Rackmount Keyboard and Monitor (RKM). Adherence to the procedures and precautions described in this chapter are essential for proper service.

Electrostatic



CAUTION: When the computer is plugged into an AC power source there is always voltage applied to the system board. You must disconnect the power cord from the power source before opening the computer to prevent system board or component damage.

Precautions

To prevent damage to the system, be aware of the precautions you need to follow when setting up the unit or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid any contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Make sure you are always properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm \pm 10 percent resistance in the ground cords. To provide proper grounding, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

Rack Stability



WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jackets are extended to the floor.
 - The full weight of the rack rests on the leveling jacks.
 - The stabilizing feet are attached to the rack if it is a single-rack installation.
 - The racks are coupled together in multiple-rack installations.
 - A rack may become unstable if more than one component is extended for any reason. Extend only one component at a time.
-

Chapter 4

Removal and Replacement Procedures

This chapter provides guidance for removing and replacing spare parts for the Compaq TFT5600 Rackmount Keyboard and Monitor (RKM).

Before you begin any of these procedures, be sure to turn off the power to the monitor, computer system, and other attached devices; then disconnect the power cable from the power source.



CAUTION: As you disassemble the TFT5600 RKM, be sure to place the screws in a safe place, and separate them according to their groupings.

After completing all necessary removal and replacement procedures, power on the TFT5600 RKM to verify that all components are operating properly.

Spare Replaceable Parts

The TFT5600 RKM contains the following replaceable parts:

- SPS-PLASTICS 229846-001
 - ❑ Clutch covers
 - ❑ Rear cover
 - ❑ Front plastic bezel
 - ❑ Palm rest
- SPS-KEYBOARD 230978-XXX
- SPS-DISPLAY,LCD,15" 229842-001
- SPS-BD,CNTRLR 229847-001
- SPS-RAIL,MOUNTING,W/SLIDES 229845-001
 - ❑ Mounting rails
 - ❑ Slides
 - ❑ Brace
 - ❑ Cable management arm
- SPS-TRAY,METAL 229843-001
 - ❑ Metal tray
 - ❑ Metal controller cover
 - ❑ Metal grounding clip
- SPS-ADPTRAC 40W 4PRONG/MINIJCK 218319-001
- SPS-CORD,AC PWR,10',BLK 255135-XXX
- SPS-CA,VGA,MALE-MALE,9FT 238729-001
- SPS-CA,AC LINE,C5-C14,ADAPTER 192514-001

Product Kit Contents

- M-6 cage nuts (2)
- M-6 screws (8)
- 6-32 screws (12)
- Mounting rail and slides (2)
- Cable management arm (1)
- Brace (1)
- TFT5600 Rackmount Keyboard Monitor (1)
 - Model M5FAE, TFT5600 RKM
 - Saleable Part Number 221546-001,-xxx
- Lock plate (2)
- Rack template (1)
- Keyboard hot key label (2)

This kit may contain extra pieces of hardware for your convenience.

Tools Required

- Phillips screwdriver
- T-15 Torx driver

SPS-PLASTICS
229846-001

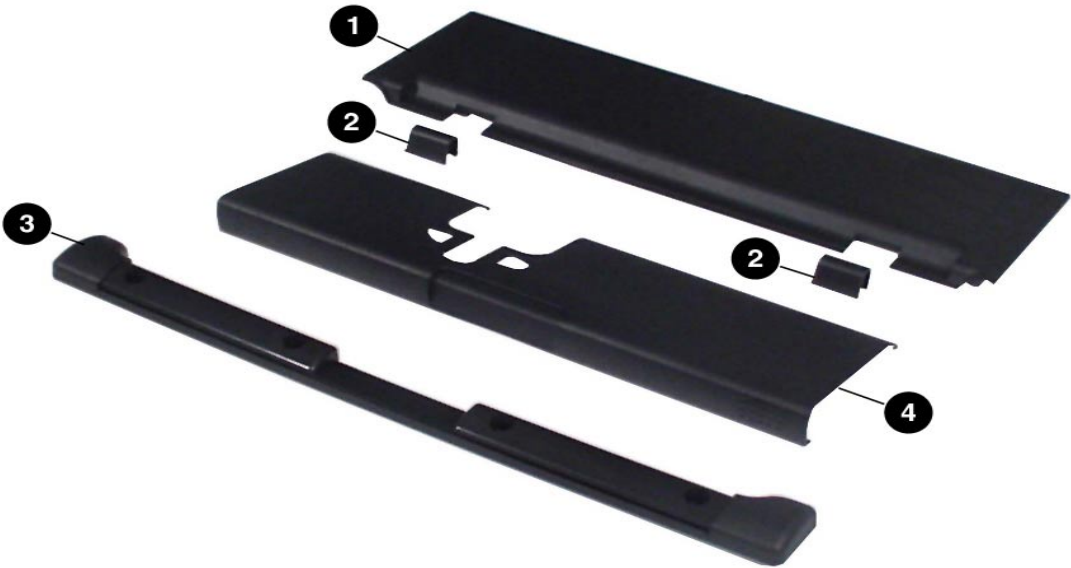


Figure 4-1. SPS-PLASTICS 229846-001

Table 4-1
SPS-PLASTICS 229846-001

Reference	Component
❶	Rear cover
❷	Clutch covers
❸	Front plastic bezel
❹	Palm Rest

Removing the Rear Cover

To remove the rear cover:

Remove the screw ❶, slide the rear cover back ❷, rotate and remove it out of position ❸.

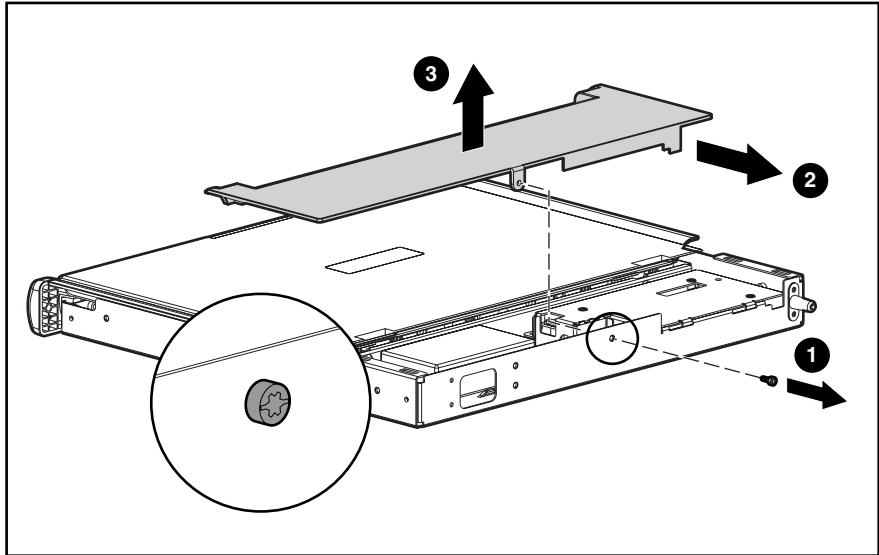


Figure 4-2. Removing screw and sliding rear cover off

IMPORTANT: When replacing the rear cover, make sure the plastic hooks, on the underside of the rear cover, hook to the metal tray.

To replace the rear cover, reverse the above procedure.

Removing the Clutch Covers

To remove the clutch covers:

Unsnap the clutch covers, rotate them toward the front of the unit, and remove them.

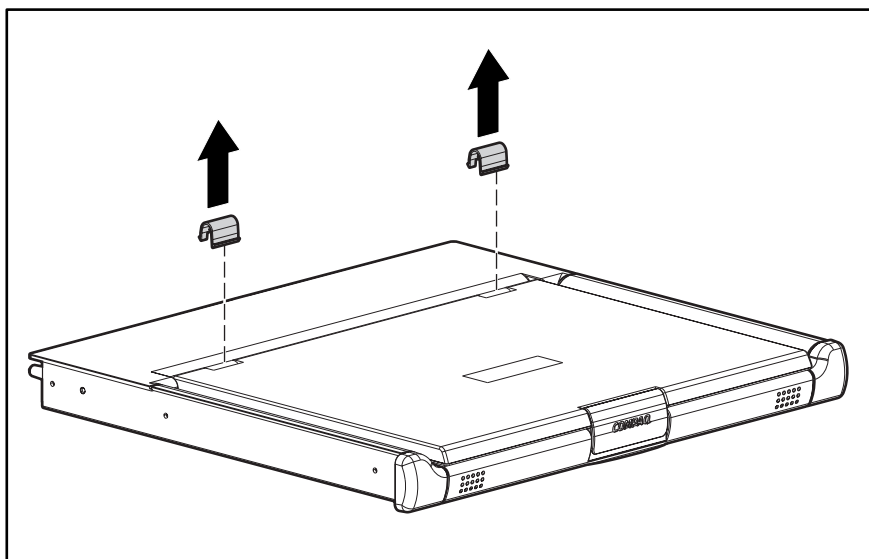


Figure 4-3. Removing clutch covers

IMPORTANT: Before replacing the clutch covers, the rear cover must be installed and the cables must be aligned properly so there is no interference.

To replace the clutch covers, reverse the above procedure.

Removing the Palm Rest

To remove the palm rest:

Turn the unit over and remove the four screws ❶ securing the palm rest, slide the palm rest up and out ❷, and remove it ❸.

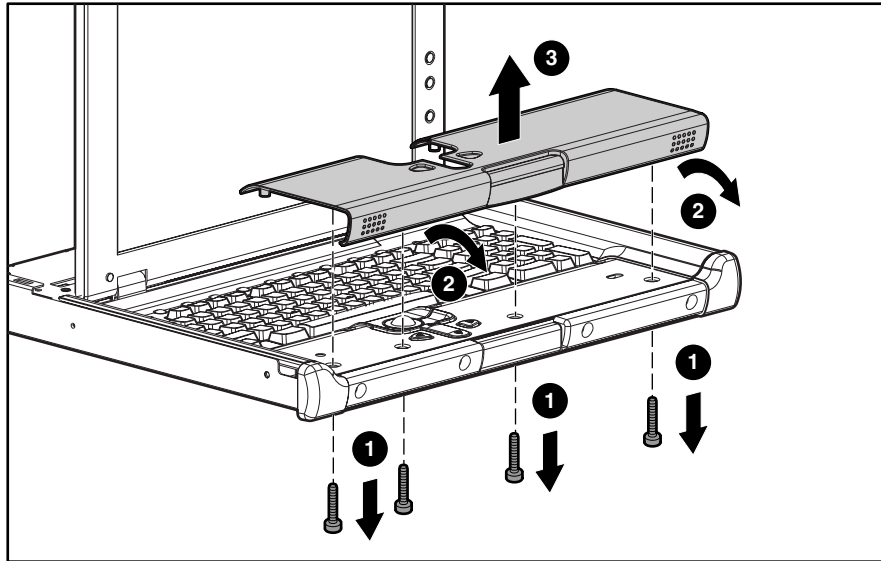


Figure 4-4. Removing screws securing palm rest

IMPORTANT: Before replacing the palm rest, the front plastic bezel must be installed.

To replace the palm rest, reverse the above procedure.

Removing the Front Plastic Bezel

IMPORTANT: You must remove the palm rest before you remove the front plastic bezel.

To remove the front plastic bezel:

Remove the four screws securing the front plastic bezel to the metal tray; then remove the front plastic bezel.

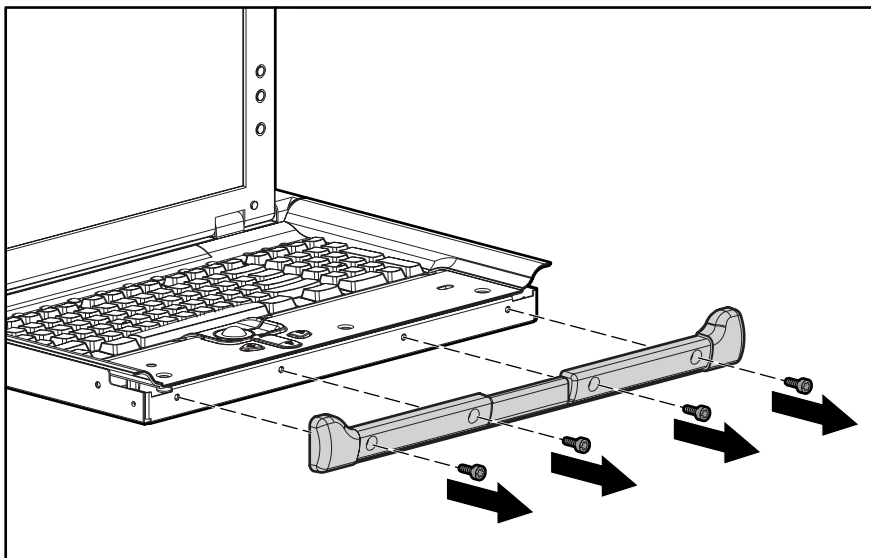


Figure 4-5. Removing screws from front plastic bezel

To replace the front plastic bezel, reverse the above procedure.

SPS-KEYBOARD 230978-XXX



Figure 4-6. SPS-KEYBOARD 230978-XXX

Removing the Keyboard Assembly

IMPORTANT: You must remove the clutch covers, rear cover, and AC brick before you remove the keyboard assembly.

To remove the keyboard assembly:

1. Disconnect all cables from their source.
2. Turn the unit over and remove the four screws securing the palm rest and the five screws securing the keyboard assembly to the metal tray.

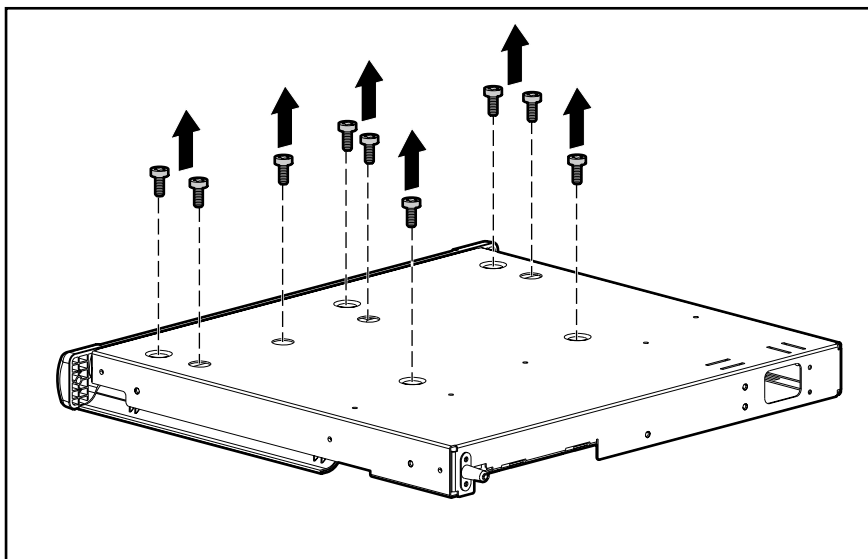


Figure 4-7. Removing screws from bottom of unit

3. Turn the unit right side up and remove the palm rest by sliding the palm rest up and out.

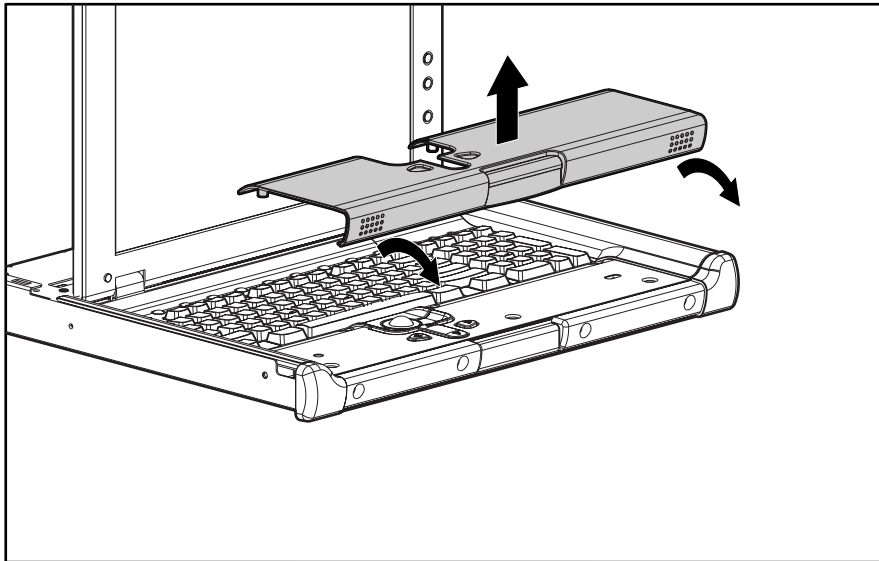


Figure 4-8. Removing palm rest

IMPORTANT: Before removing the keyboard assembly, the tie wraps holding the cables together in the rear of the unit must be cut.

4. Remove the keyboard assembly, paying special attention to the cord in the rear.

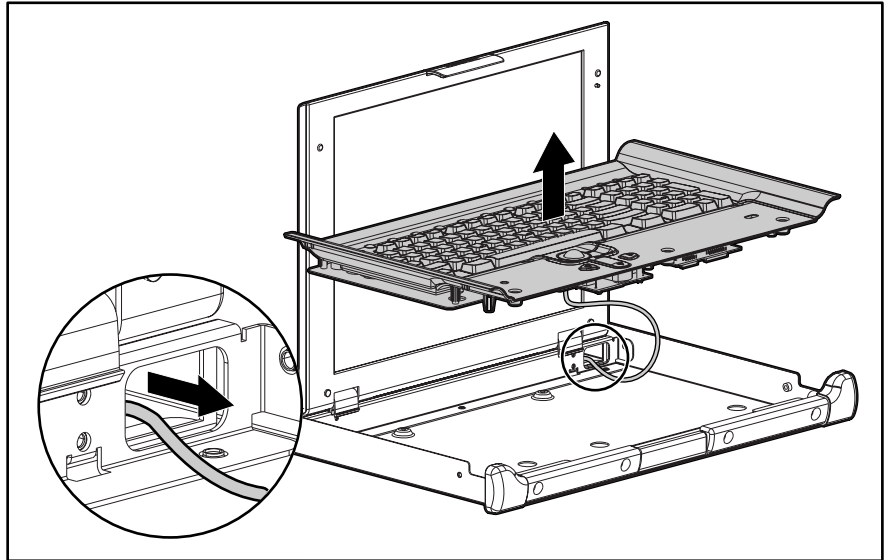


Figure 4-9. Removing keyboard assembly

To replace the keyboard assembly, reverse the above procedure.

SPS-DISPLAY,LCD,15"
229842-001



Figure 4-10. SPS-DISPLAY,LCD,15" 229842-001

Removing the Display

IMPORTANT: You must remove the clutch covers, rear cover, keyboard assembly, and palm rest before you remove the display.

To remove the display:

1. Remove the screw securing the grounding clip and cable to the metal controller cover.

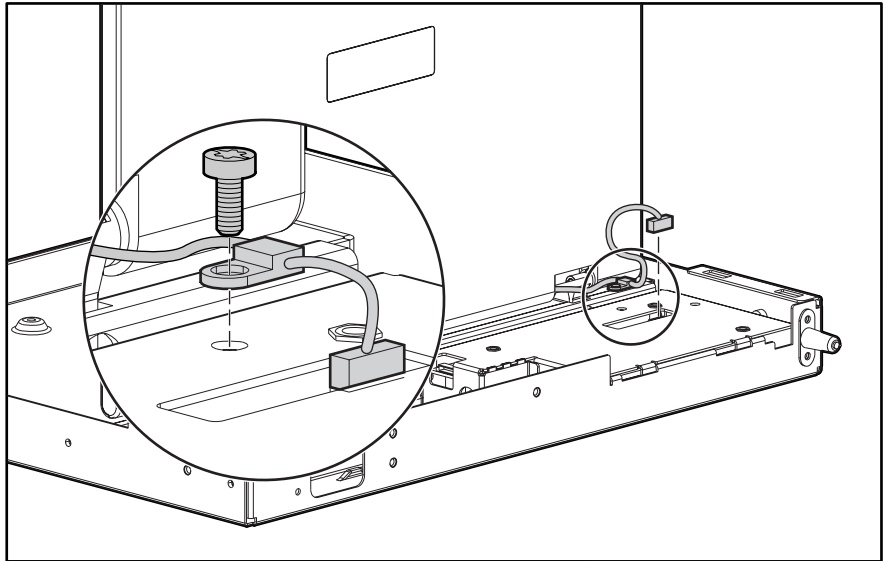


Figure 4-11. Removing grounding clip

2. Unplug the three cables connecting the display assembly to the controller board.



WARNING: Do not pull on the exposed wires, only pull on the plastic shroud connectors attached to the wires.

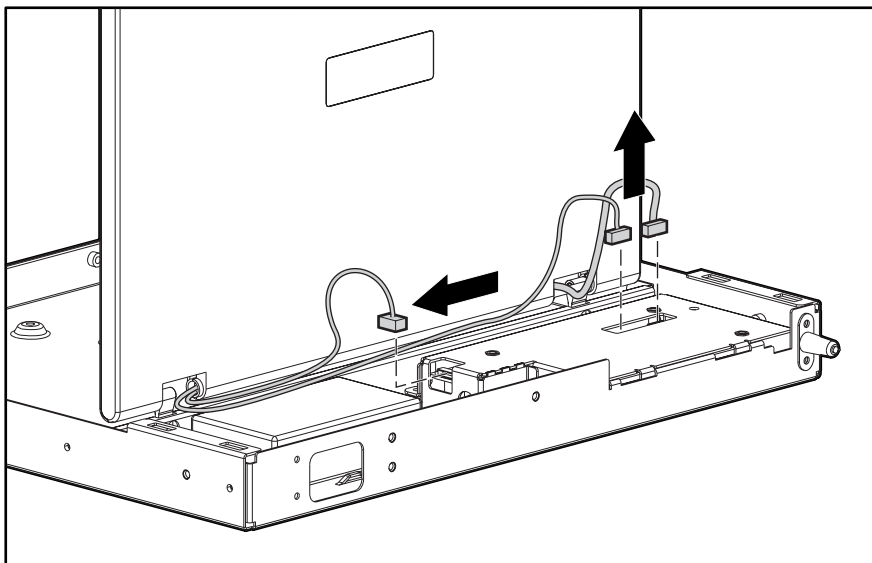


Figure 4-12. Disconnecting cables connecting display assembly

3. Remove the four screws **1** securing the display to the metal tray; then remove the display **2**.

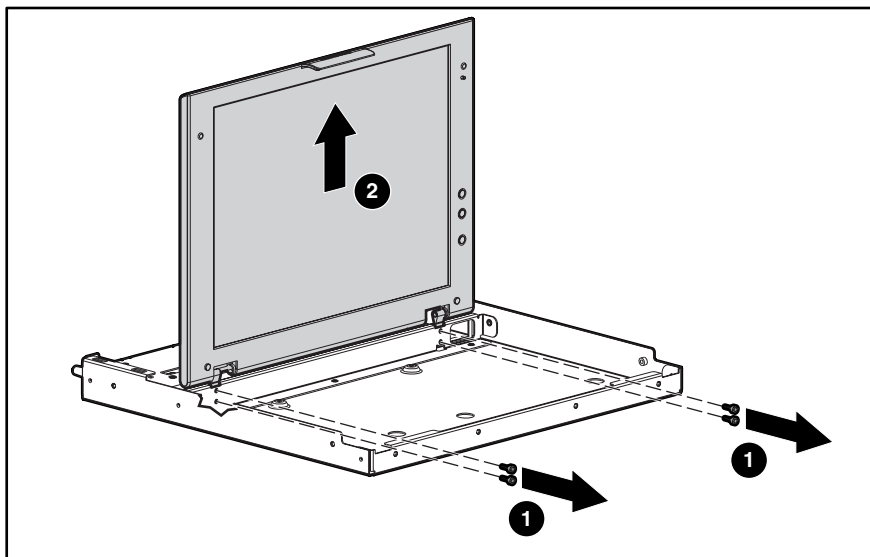


Figure 4-13. Removing screws securing display

To replace the display, reverse the above procedure.

**SPS-ADPTRAC 40W 4PRONG/MINIJCK
218319-001**



Figure 4-14. SPS-ADPTRAC 40W 4PRONG/MINIJCK 218319-001

Removing the AC Brick

IMPORTANT: You must remove the rear cover before you remove the AC brick.

To remove the AC brick:

1. Disconnect all cables from their source.
2. Unplug the AC brick from the controller board and lift the brick off of the Velcro.

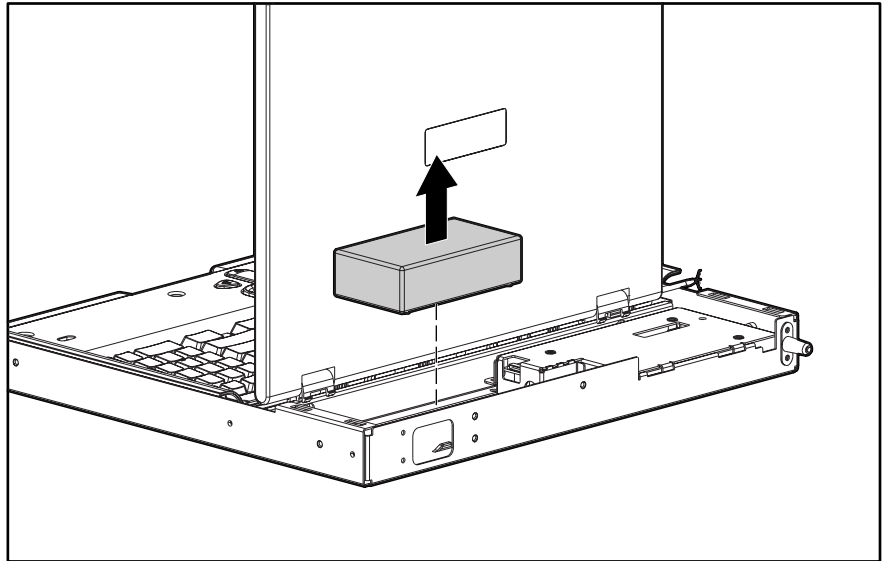


Figure 4-15. Removing AC brick

IMPORTANT: Make sure the AC brick is properly located on the Velcro so that the rear cover can be installed.

To replace the AC brick, reverse the above procedure.

SPS-BD,CNTRLR 229847-001

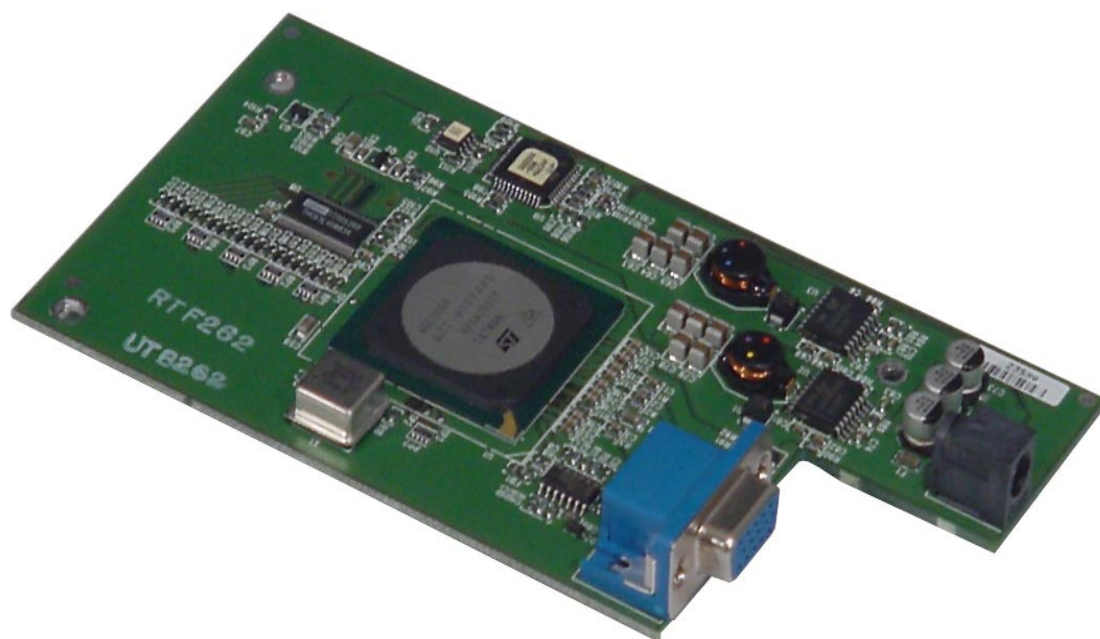


Figure 4-16. SPS-BD,CNTRLR 229847-001

Removing the Controller Board

IMPORTANT: You must remove the rear cover and AC brick before you remove the controller board.

To remove the controller board:

1. Remove the screw securing the grounding clip to the metal controller cover.
2. Disconnect all cables from their source, except for the VGA cable.
3. Remove the two screws securing the metal controller cover to the metal tray.

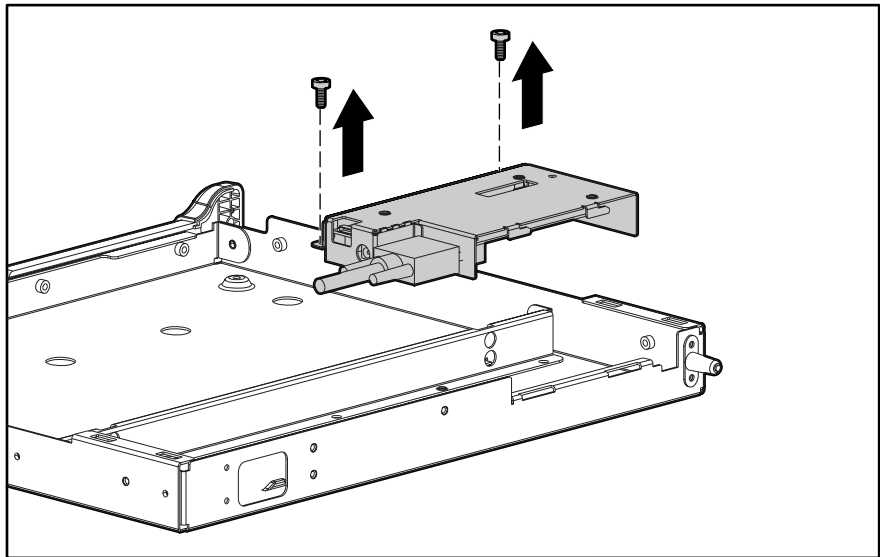


Figure 4-17. Removing screws from metal controller cover

4. Slide the metal controller cover ❶ and lift it straight out ❷.

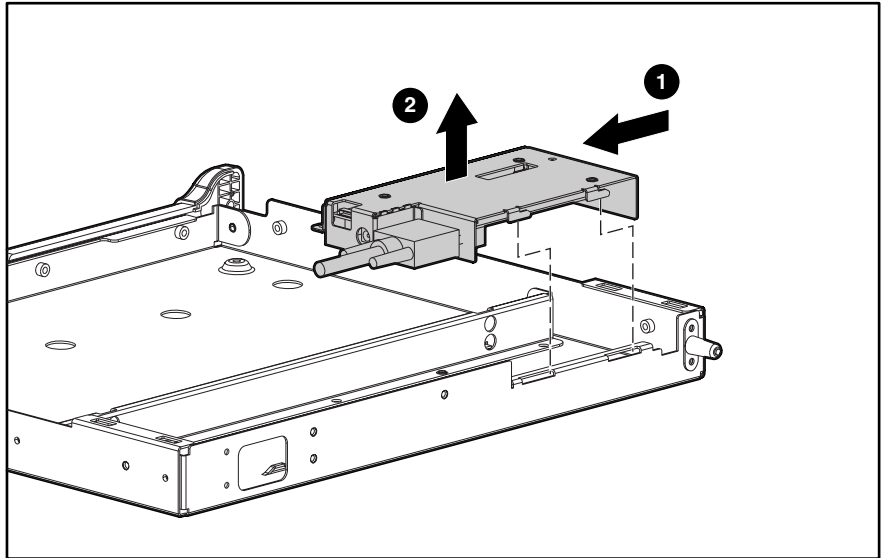


Figure 4-18. Removing metal controller cover

5. Unscrew the VGA cable.
6. Remove the two screw locks from the VGA cable connector.

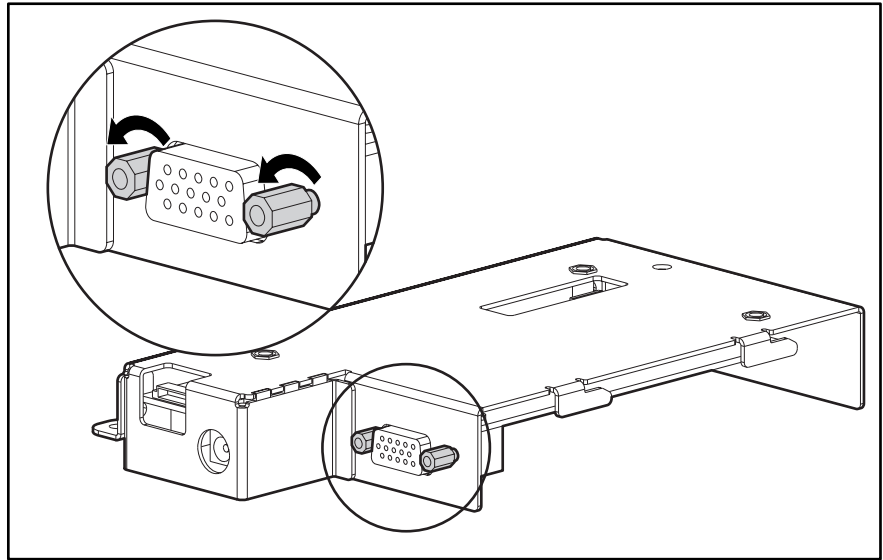


Figure 4-19. Removing screw locks

7. Remove the three screws securing the controller board to the metal controller cover.

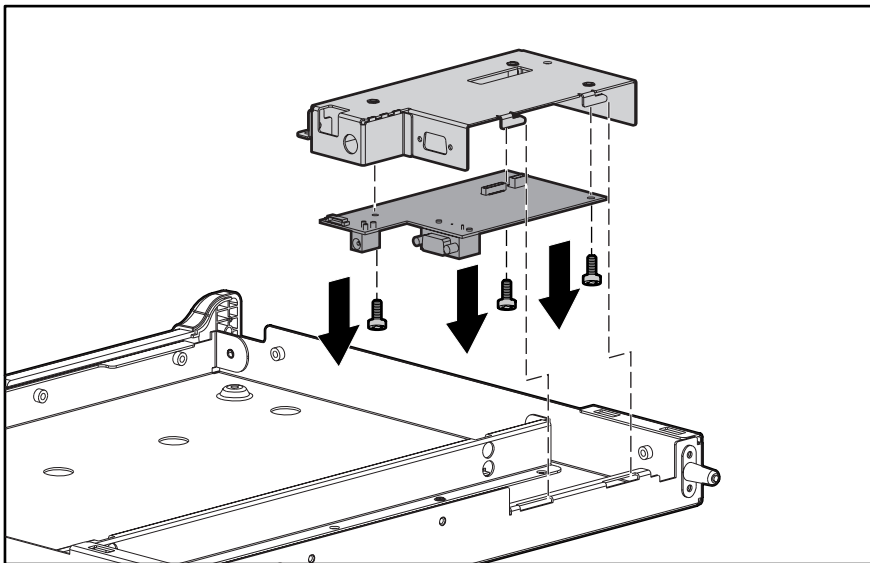


Figure 4-20. Removing screws from metal controller cover

8. Remove the controller board from the metal controller cover.

To replace the controller board, reverse the above procedure.

SPS-RAIL,MOUNTING,W/SLIDES 229845-001

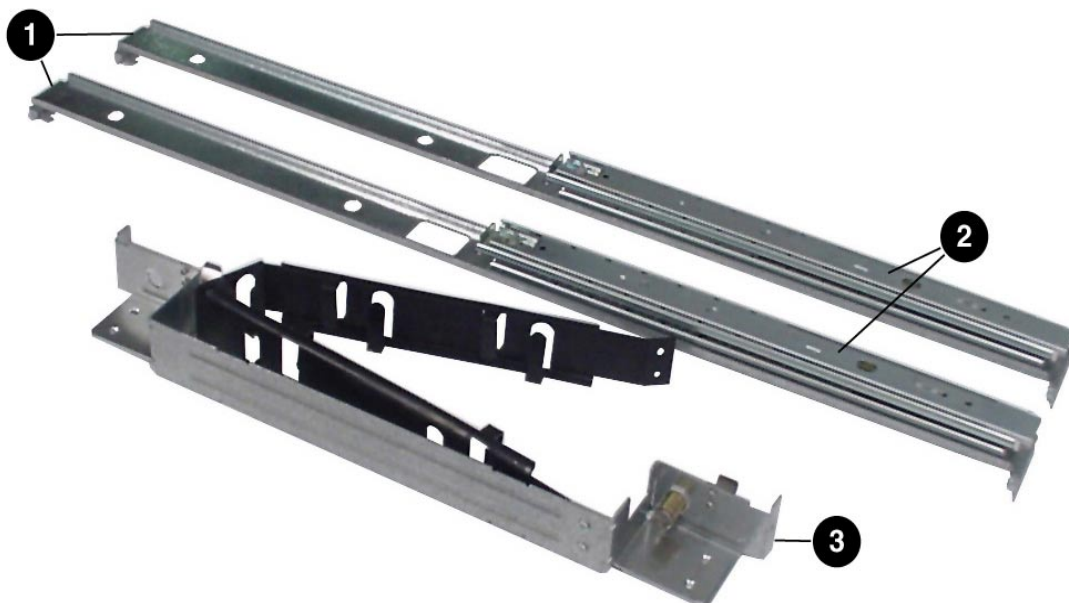


Figure 4-21. SPS-RAIL,MOUNTING,W/SLIDES 229845-001

Table 4-2
SPS-RAIL,MOUNTING,W/SLIDES 229845-001

Reference	Component
❶	Mounting rails
❷	Slides
❸	Brace assembly

Removing the Brace Assembly

To remove the brace assembly:

1. Disconnect all cables from their source.
2. Unthread the cables from the cable management arm.
3. Remove the two screws securing the cable management arm to the rear of the metal tray.

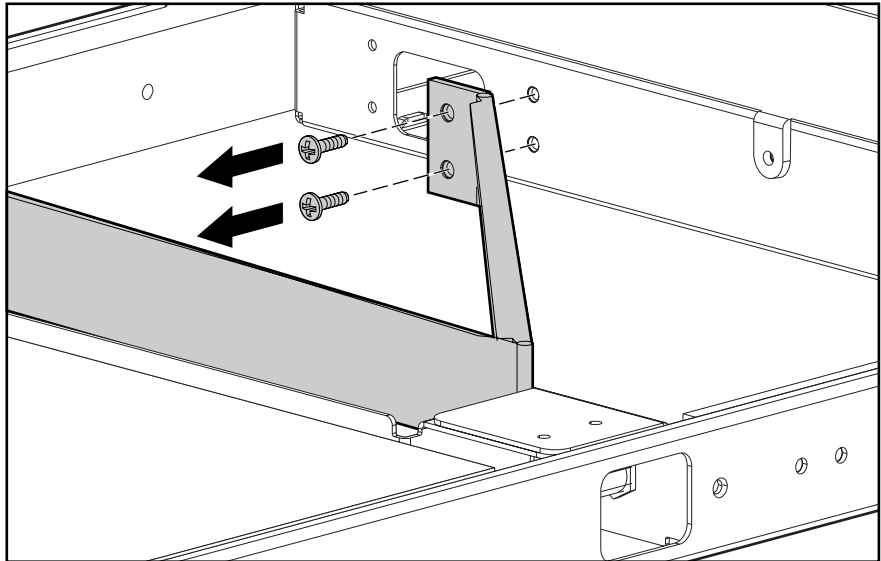


Figure 4-22. Removing screws securing brace assembly

4. Remove the two screws ❶ securing the brace assembly to the rear of the rack, and remove the brace assembly ❷.

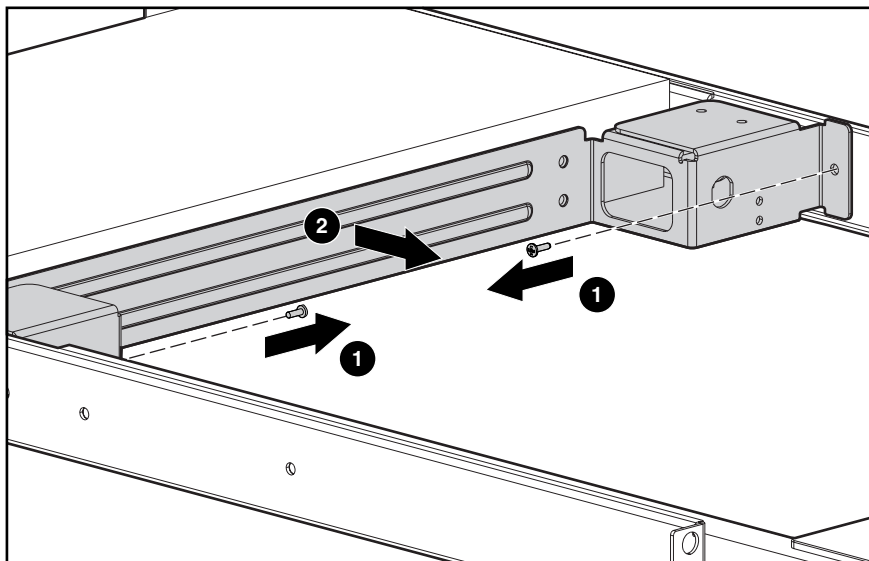


Figure 4-23. Removing screws securing brace assembly

To replace the brace assembly, reverse the above procedure.

Removing the Mounting Rails with Slides

IMPORTANT: You must remove the unit before you remove the mounting rails with slides.

To remove mounting rails with slides:

1. Remove the two screws, on each side of the mounting rails, securing them to the brace assembly.
2. Remove the brace assembly.
3. Remove mounting rail screws from the front of the rack.

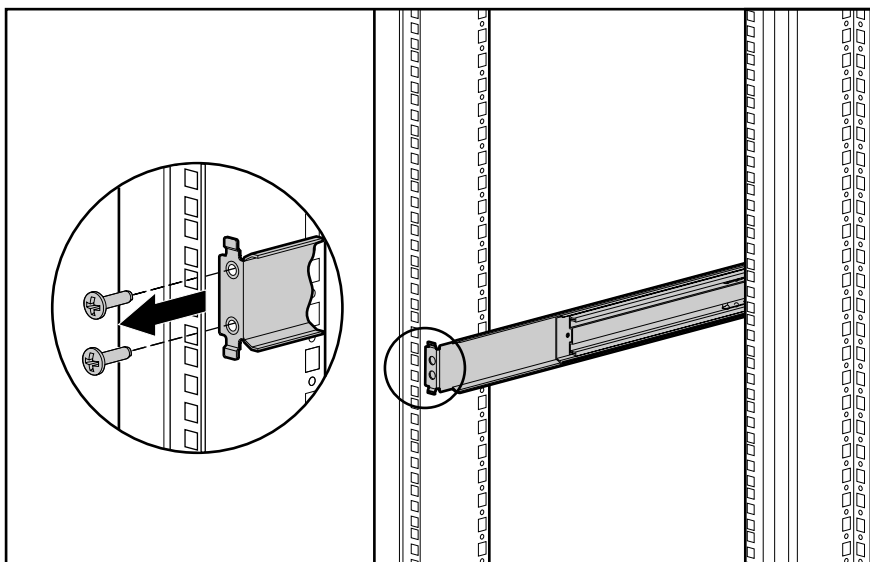


Figure 4-24. Removing front mounting rail screws

4. Remove the screw ❶ and mounting rails ❷ from the rear of the rack.

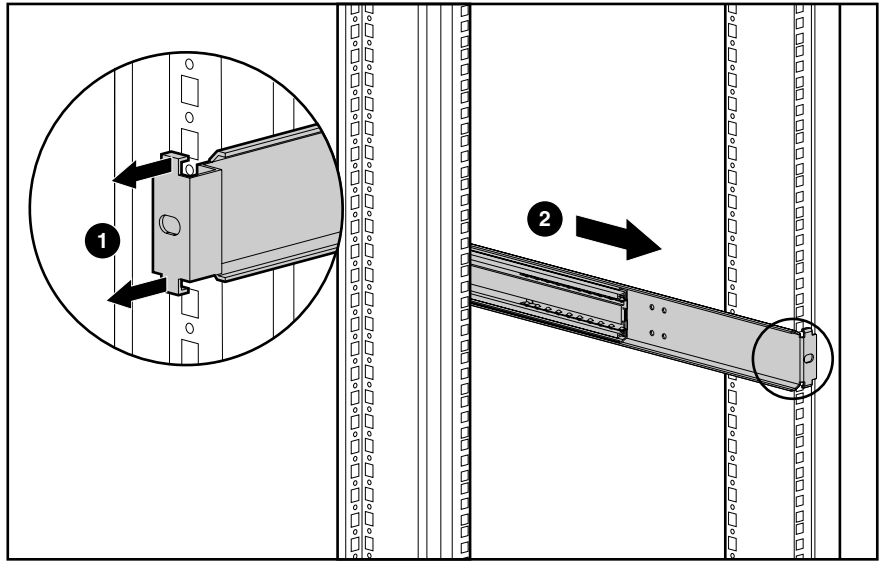


Figure 4-25. Removing mounting rails from rear of rack

5. Remove the mounting rails with slides.

To replace the mounting rails with slides, reverse the above procedure.

SPS-TRAY,METAL
229843-001



Figure 4-26. SPS-TRAY,METAL 229843-001

Table 4-3
SPS-TRAY,METAL 229843-001

Reference	Component
❶	Metal tray
❷	Metal controller cover
❸	Metal grounding clip (not shown)

Removing the Metal Controller Cover

IMPORTANT: You must remove the clutch covers, rear cover, and AC brick before you remove the metal controller cover.

To remove the metal controller cover:

1. Remove the screw securing the grounding clip to the metal controller cover.
2. Disconnect all cables from their source, except for the VGA cable.
3. Remove the two screws securing the metal controller cover to the metal tray.

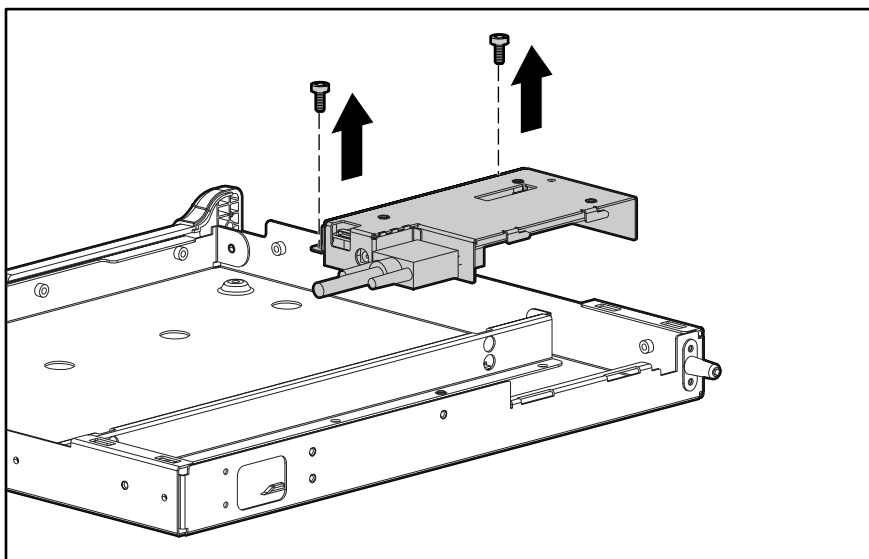


Figure 4-27. Removing screws from metal controller cover

4. Slide the metal controller cover ❶ and lift straight out ❷.

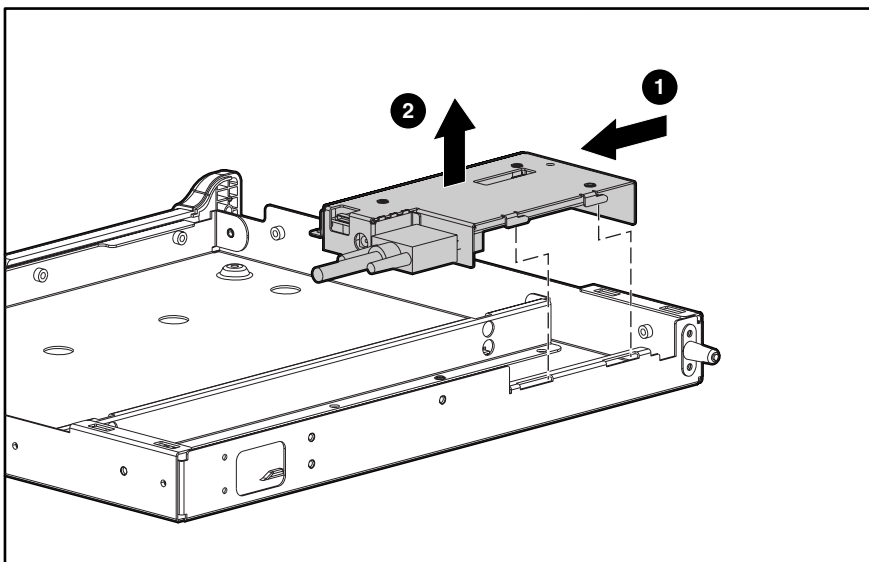


Figure 4-28. Removing metal controller cover

5. Unscrew the VGA cable.
6. Remove the two screw locks from the VGA cable connector.
7. Remove the three screws securing the controller board to the metal controller cover.
8. Remove the controller board from the metal controller cover.

To replace the metal controller cover, reverse the above procedure.

Removing the Metal Tray

IMPORTANT: You must remove the clutch covers, rear cover, and metal controller cover before removing the metal tray.

To remove the metal tray:

1. Disconnect all cables from their source.
2. Turn the unit over and remove the nine screws from the bottom of the unit.

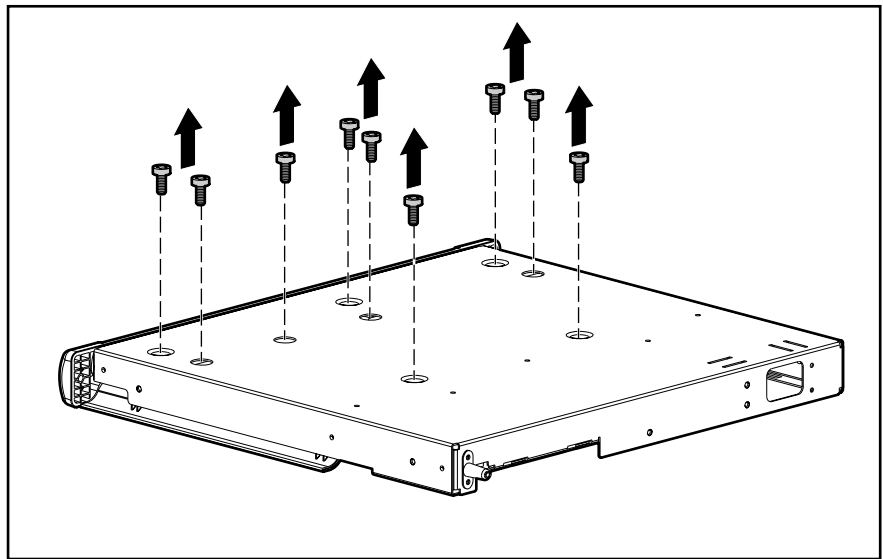


Figure 4-29. Removing screws from bottom of unit

3. Remove the palm rest.
4. Turn the unit right side up and lift the keyboard assembly straight out, paying special attention to the cord in the rear.

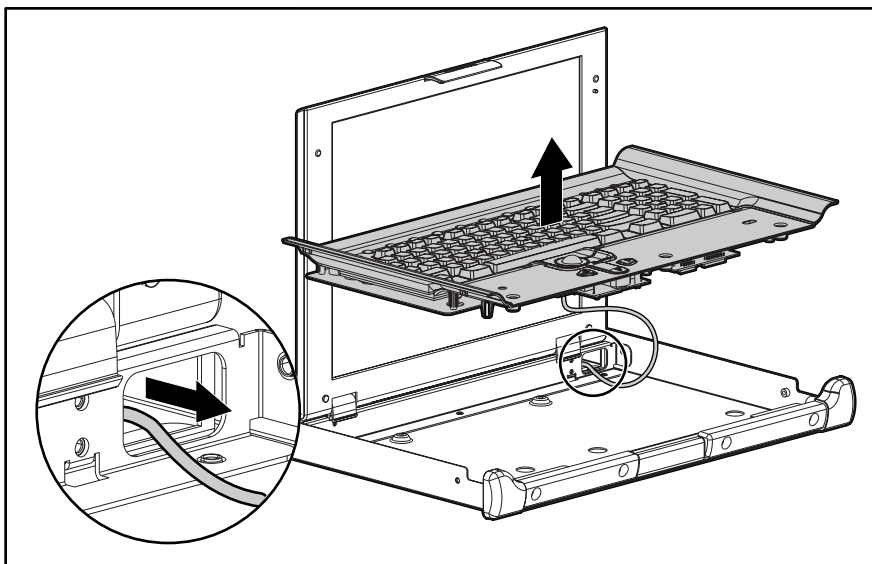


Figure 4-30. Removing keyboard assembly

5. Remove the front plastic bezel.
6. Remove the four screws **1** securing the display to the metal tray and lift the display out **2**.

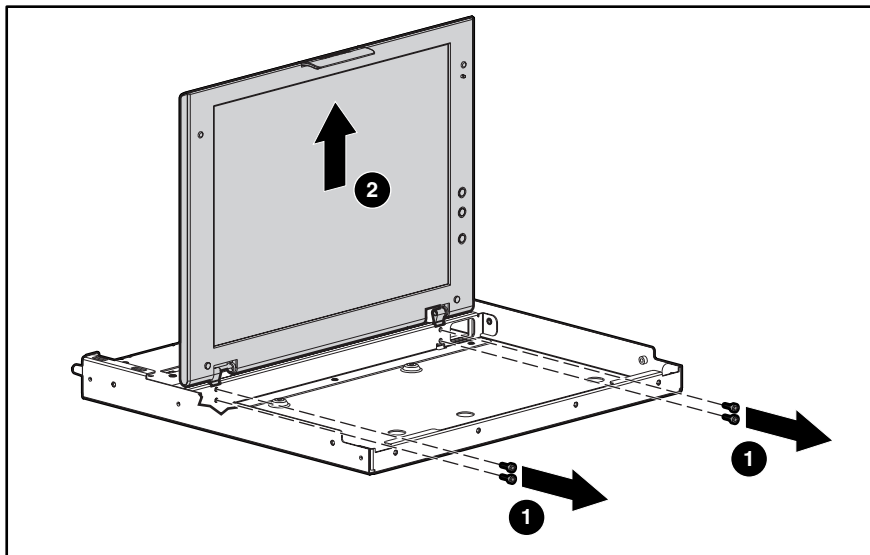


Figure 4-31. Removing screws and lifting out monitor assembly

To replace the metal tray, reverse the above procedure.

**SPS-CA,VGA,MALE-MALE,9FT
238729-001**



Figure 4-32. SPS-CA,VGA,MALE-MALE,9FT 238729-001

Specifications

Table 5-1 TFT5600 RKM Specifications		
Display	15-in	38.1 cm
Type	Flat panel, Active matrix-TFT LCD	
Viewable Image Size	15-in diagonal	38.1 cm
Face Treatment	Transparent protector with antiglare coating	
Maximum Weight (Unpacked)	13.75 lb	6.25 kg
Maximum Dimensions		
Height	1.7 in	4.32 cm
Depth	15.6 in	39.6 cm
Width	17.00 in	43.2 cm

continued

Table 5-1
TFT5600 RKM Specifications *continued*

Maximum Graphics Resolution	1024 x 768 @ 60Hz Refresh Rate
Horizontal Frequency	48.2 kHz
Vertical Frequency	60 Hz
Environmental Temperature Requirements (Independent of Altitude)	
Operating	10 to 50°C
Storage Temperature	0 to 60°C
Humidity (Non-Condensing)	
Operating	20 to 90%
Non-Operating	0 to 90%
Power Source	90 to 264 VAC, 47 to 63 Hz
Power Consumption	50 Watts

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